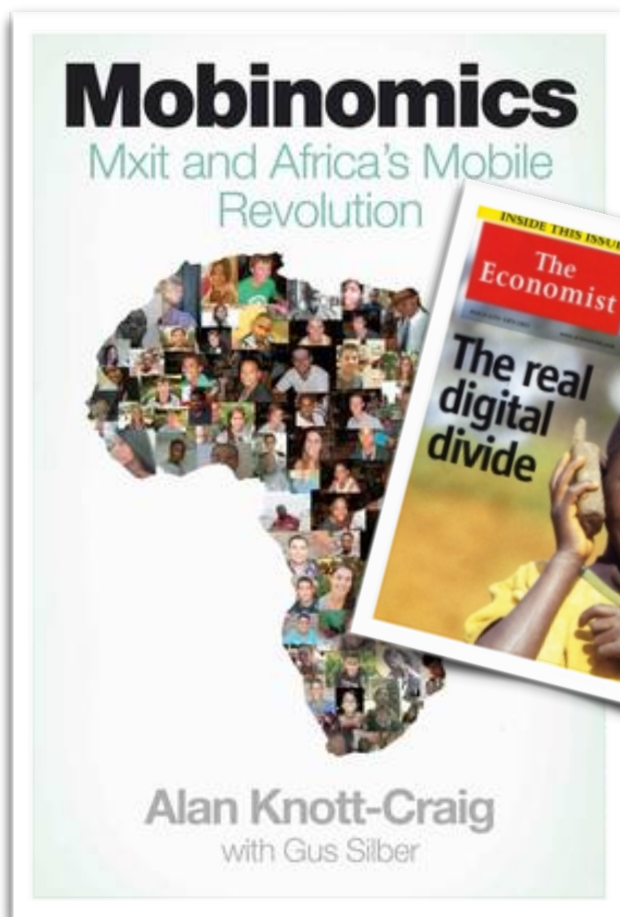# Africa's Mobile Revolution *and overcoming the* **Digital Divide**

During the past few years a *Mobile Revolution* has been taking place all over Africa -- and it hasn't been limited to corporate leaders in capital cities. Smartphones and tablets can now be seen all over Africa, even in the most remote villages. The sales of smartphones and tablets now outnumber the sales of desktop and laptop computers in Africa by a margin of four to one.

All the Tools have now changed -- *giving instant access to the world*

You can now have mobile tools that give you titanic freedom -- whether you are a businessman in Lagos, a Maasai cattleman in rural Kenya, some students using a new iPad, an agriculture extension agent talking with rural farmers from his bicycle, or the excitement of using *Skype* to chat with your sister studying at Oxford.

Mobinomics
Mxit and Africa's Mobile Revolution

INSIDE THIS ISSUE: TECHNOLOGY
The Economist

The real digital divide

Alan Knott-Craig
with Gus Silber

ILS

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The *Global Mobile Revolution* and the *Real Digital Divide* in Africa today

The Global Mobile Revolution

During the past few years our world has witnessed a truly *Global Mobile Revolution,* thanks primarily to three very innovative inventions -- the **Cell Phone**, the **Internet** and the **Tablet**. It is hard to believe that the first tablet, an *Apple iPad,* was only released on April 3, 2010. Listed bellow is a three year global summary of the explosive growth of hand held *Apple iPads* and *Android Tablets*:

- *2011 -- the year of the **Apple iPad** (102 million sold) and related **Apple apps** (500,000+)*
- *2012 -- the year of the **Android Tablets** (119 million sold) and related **Android apps** (600,000+)*
- *2013 -- the year of the **Handheld Office** and related **Apple** and **Google Android apps** (1.7 billion)*

This Mobile Revolution *has now reached* Africa

- **Smart phones** *and* **tablets** *in Africa* **now outsell computers** *by a* **margin of four to one**
- **Over 50%** *of the* **Internet connections** *in Africa are* **now via mobile devices**

The Real Digital Divide *facing* Africa today

- *Although* **Mobile Phones** *have a* **67% penetration** *in* **Africa**
- **Internet access** *only has a* **9% penetration** *in* **Africa** *-- And over* **70%** *of this Internet access is in just three countries of Africa: South Africa, Nigeria and Kenya*

*Global Internet Access -- **Web Access** for the **5 billion who can't go online***

Internet for All

On August 20, 2013, Mark Zuckerberg, founder and CEO of **Facebook**, announced the launch of **internet.org**, a global partnership dedicated to making affordable internet access available to the 5 billion who are not yet connected.

January 2014 stats estimate that there are **2.2 billion Internet users** or a **35% global penetration** of a 7.2 billion population -- (Africa 9%, Asia 19%, W Europe 78%, E Europe 54%, M East 37%, N America 81%, S America 47%).

Why aren't more people connected?

Devices are too expensive.

Service plans are too expensive.

There's no mobile network to connect to.

Content isn't available in the local language.

Awareness of the value of internet is limited.

Availability of power sources is limited.

Networks can't support large amounts of data.

Together we can remove these barriers and give billions of people the power to connect.

ILS International applauds the launch of **internet.org**. However, as *ILS* looked at the goal of **Global Internet Access** *and its related* **Internet Barriers,** as stated above, we came up with the following *ILS* solutions for a **Mobile Info System** that can be implemented **today.** These solutions require minimal *Internet* connection and can be used **offline** using **GeoPDF maps** and related **PDF eTools** *and* **eBooks**, via low cost 7" tablets, now available below $200., and powered long term via a low cost external **Battery Pack** and portable **Solar Charger**.

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How ILS's *Offline Mobile Info System* overcomes *Six Major Barriers* facing the *Internet*

1. **Devices are too expensive.** -- By focusing on low cost tablets, like *Samsung's Galaxy Tab 3* -- that provides the user with a built in GPS, a MicroSD card slot (with a removable 8 GB card), and a micro USB port for quickly uploading and downloading maps and data. -- **Total cost**: under **$ 200.**

2. **Service plans are too expensive.** -- By moving to a tablet with an internal GPS, vs a smart phone (with a pay per call card or phone contract), you eliminate the need for a cell phone contract and an Internet service plan. **Total cost**: **$ 0.00**

3. **There's no mobile network to connect to**. -- By using the unique *offline* and FREE **PDF Maps** app, by *Avenza*, you can access over 100,000 geo-referenced PDF maps via their **Global Map Store Network** via **iTunes** (for *Apple* devices) and **Google Play Store** for (*Android* devices).
App cost: $ 0.00 *and* **PDF Map cost: $ 10**. per map (for ILS's new geo-referenced maps for Africa).

4. **Content isn't available in the local language.** -- *ILS* is designing *country focused* **Language Atlases** and a related suite *of* **Quick Reference Language eTools**. These *eTools* focus on the language location and latest available population for each of the world's 7,106 known living languages. These tools will enable content providers to prioritize the **2,146 living languages of Africa.**

5. **Availability of power sources is limited.** -- There are now available a number of low cost portable *backup battery packs* and *solar chargers* (for Smart phones and the lower powered 7" tablets).

6. **Networks can't support large amounts of data.** -- *ILS* is developing a 1,000 volume *digital library* of *Life Critical Info* resources (that are copyright free) and packaged into smaller country specific **PDF eBooks** *and Geo* **PDF Maps** that can be quickly downloaded from the Internet and used offline on any tablet.

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ILS's *Africa Digital Atlas Project* and related *Mobile Info System* (MIS)

Designing and field testing an **Offline Navigation, Research** and **Mobile Info System** (MIS)

During the past 24 months, *ILS* designed and field tested over120 **geo-referenced PDF maps** and related *Quick Reference eTools* for a language consultant working throughout Nigeria, CAR, DR Congo, Angola, Mozambique, Kenya and Indonesia. Thanks to the powerful **PDF Maps** *Apple* and *Android* app, by **Avenza**, each of *ILS's* new *geo-referenced PDF* maps were transformed into a very powerful **Offline Navigation, Research** and **Management System**, with minimal dependency on the Internet.

Birth of the **Africa Digital Atlas Project** and related **Country** focused **Mobile Info System**

As key leaders saw both the power and accuracy of geo-location based *offline navigation, research and project management system* they began pressing us for the same country focused **Mobile Info Systems** for other nations where they were working throughout Africa. These leaders were amazed to see their exact location on a handheld tablet (whether they were flying over the jungle, driving through the savannah or traveling up a river by canoe). They immediately saw many applications -- like tracking the deadly Ebola disease, mapping rural schools and health care clinics and the exact location of old water wells, etc.

Project Vision and **Capacity**

Each **Country Digital Atlas** and related **Country Mobile Info System** (MIS) will be designed one nation at a time. ILS estimates it will take 3-4 years to complete the initial goal of **20 countries** of **Africa**. The year 2014 will focus on the **DR Congo**, one of the poorest and most complex nations of Africa. During 2014 ILS will be standardizing and semi-automating the production of the five **Geo-Referenced Atlases.**

ILS International / 590 Highway 105, #308, Monument, Colorado 80132
Office phone: 719-531-9208 / Marvin Bowers, President / Cell: 719-337-8558

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Africa Digital Atlas Project / Offline Navigation and *Research System*

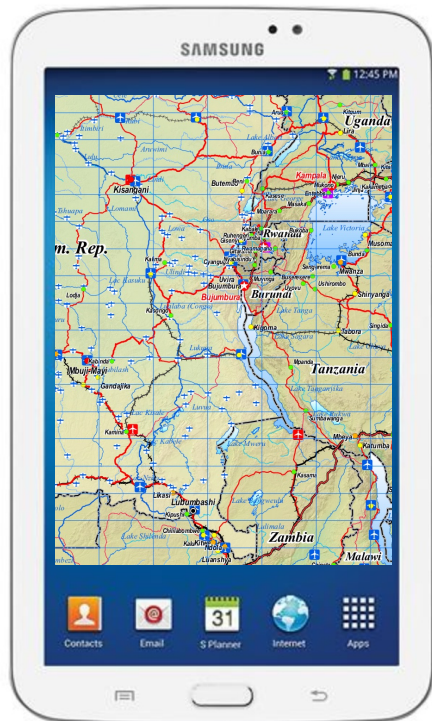*PDF Maps* app by *Avenza* turns ILS's GeoPDF maps into an *Offline Navigation* and *Research System*

- *Offline Navigation* -- Instantly find your exact location and even track your route on a Geo PDF map using the internal GPS in your smartphone or tablet.

- *Offline Research* -- Place up to 500 push pins on each map, with related data, photos and even save multiple route tracks (note orange track line)

- *Global Project Management* -- **Export** and **Import placemark data, route tracks** and **photos**
  Later, when you have access to the internet you can send your data, multiple route tracks and photos as an e-mail attachment or sync with *Dropbox* for importing into *Google Earth*, a database, spread sheet or GIS system

  Marv, I thought you would like this picture I took tracking our flight route on my iPad during a recent flight in a MAF Cessna 182 in Mozambique. Jon

Map Legend

✈ Civilian/Public
✈ Joint Military/Civilian
✈ Military
✛ General Aviation

Placemark — Close

FQMR MARRUPA
5/2/13, 8:43 PM

Description — Altitude 2480ft
Photos — Not Set
Location — -13 13.503, 37 33.123

Attributes
What is this?
Africa - Airports - 00 Major - All
Parent Folder
Configure 'Africa - Airports - 00 Major - All '
Edit Attribute Schema

Delete

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Africa Digital Atlas Project / *A tablet based offline* **Navigation** *&* **Research System**

Manage Your Projects offline
from the palm of your hand

Each *ILS Mobile Info System* (*MIS*) focuses on a specific country and will include five *Digital Atlases* and a related *Quick Reference eTools Suite*. These country focused *Offline Mobile eTools* will be made available both as stand alone *Mobile eTools* or combined into an integrated **Country MIS,** delivered on a *DVD* or *MicroSD* card and a related web site.
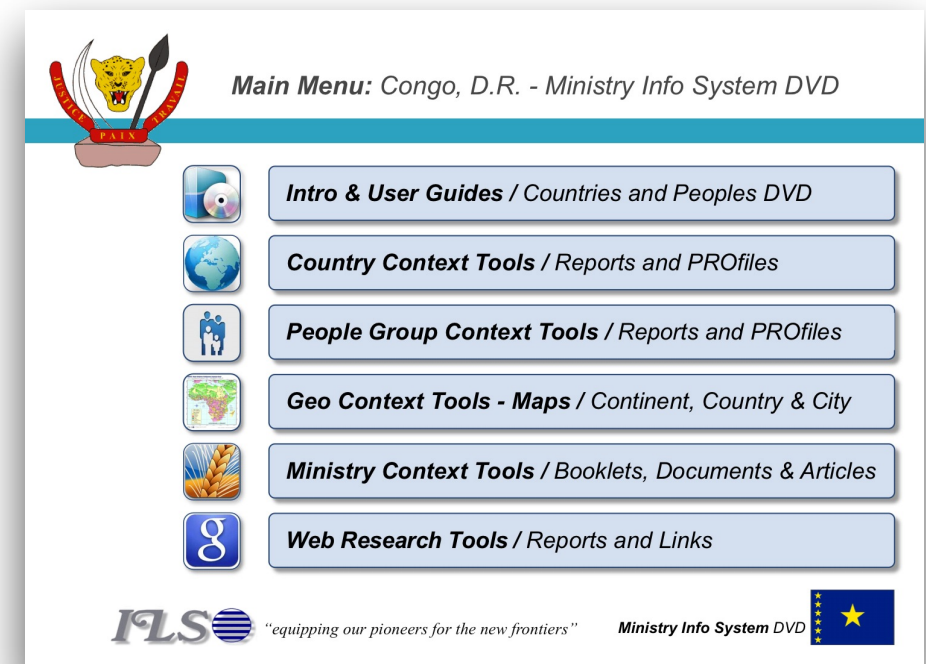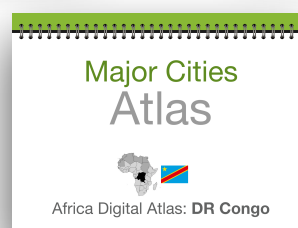
Geo-Referenced Offline Digital Atlases

Each of the five *Country focused* **Digital Atlases** will enable a leader to quickly locate, research and track geo-referenced projects from the palm of their hand.

Country Level
Topo Atlas
Africa Digital Atlas: **DR Congo**

Region Level
Topo Atlas
Africa Digital Atlas: **DR Congo**

Village Level
Topo Atlas
Africa Digital Atlas: **DR Congo**

Major Cities
Atlas
Africa Digital Atlas: **DR Congo**

Language
Atlas
Africa Digital Atlas: **DR Congo**

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Quick Reference **MIS eTools Suite**

Country eTools

Language *and* **People eTools**

Country **Mobile Info System** (MIS)

Main Menu: *Congo, D.R. - Ministry Info System DVD*

Intro & User Guides / *Countries and Peoples DVD*

Country Context Tools / *Reports and PROfiles*

People Group Context Tools / *Reports and PROfiles*

Geo Context Tools - Maps / *Continent, Country & City*

Ministry Context Tools / *Booklets, Documents & Articles*

Web Research Tools / *Reports and Links*

"equipping our pioneers for the new frontiers" **Ministry Info System** *DVD*

Africa Digital Atlas Project *& Country MIS / Geo PDF Atlases* - *DRC example*

Purpose -- The purpose of each ***Country Digital Atlas*** is to have a set of GeoPDF maps for an ***offline navigation*** *and* **research system,** that will enable the user to research, plan, locate and track any project from the country level down to village and language level -- from the palm of their hand. These ***GeoPDF*** maps will work on any *smart phone* or *tablet* with an internal GPS.

Country Level
Topo Atlas

Africa Digital Atlas: **DR Congo**

1. ***Country Level Topo Atlas****:* this ***7 map topo atlas*** covers seven key themes: *cities*, *towns*, *villages*, *airports*, *hospitals*, *lakes* & *rivers* and *provinces*
   Use: This atlas is designed for country level orientation and national planning

Region Level
Topo Atlas

Africa Digital Atlas: **DR Congo**

2. ***Region Level Topo Atlas****:* this ***8 map topo atlas*** covers the DRC
   Scale: 1:4,000,000 - Area: 6 x 4 degrees (400 mi W-E) x (300 mi N-S).
   Use: This atlas is ideal for region level planning and research

Village Level
Topo Atlas

Africa Digital Atlas: **DR Congo**

3. ***Village Level Topo Atlas****:* this ***119 map topo atlas*** shows the location of 19,800+ villages
   Scale: 1:1,000,000 - Area: 2 x 1 degrees (150 mi W-E) x (100 mi N-S)
   Use: This atlas is great for village level health, education and agriculture projects

Major Cities
Atlas

Africa Digital Atlas: **DR Congo**

4. ***Major Cities Atlas***: included in this ***18 map cities atlas*** are eight maps of Kinshasa, the capital of the DRC, plus a map of each of the other ten provincial capital cities.
   Use: Ideal for city level health, education and city gardens ag projects

Language
Atlas

Africa Digital Atlas: **DR Congo**

5. ***Language Atlas***: this ***21 map language atlas*** includes three levels (continent, country & region) & covers their name, location, and pop. for each of the 217 living languages in the DRC -- **Use:** Ideal for literacy and language related curriculum projects

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ILS's *Africa Digital Atlas Project* and *Country MIS / Quick Reference Africa eTools Suite*

ILS is designing an **Africa eTools Suite** that focuses on each of the 54 nations of Africa. These country focused *Mobile eTools* will be made available both as stand alone *eTools* or combined into an integrated **Country Mobile Info System** delivered on a *DVD* or *MicroSD* card and a related **Country MIS** web site. These *eTools* will work on any smart *phone* or *tablet*.

Country eTools

Airports of Africa -- *Quickly locate airports for each nation of Africa. This directory is sorted by country, province, city and airport name. (186 page eTool)*

Cities of Africa -- *Quickly locate cities (with a population over 10,000) within each nation of Africa. This directory is sorted by country, province and city name. (259 page eTool)*

World Fact Book -- *Quickly locate 16-18 pages of the latest facts and stats for each nation of Africa. This Quick Reference eTool is sorted by country name. (913 page eTool)*

BackGround Notes -- *Quickly locate 8-12 page reports on each nation of Africa. This Quick Reference eTool is sorted by country name. (507 page eTool)*

Country PROfiles -- *Quickly find, compare and contrast key stats for each nation of Africa using these two-page Country PROfiles. This Quick Reference eTool is sorted by country. (121 page eTool)*

Language and People eTools

Language Location -- *Quickly find all of the Living Languages and their location within each nation of Africa. This Quick Reference eTool is sorted by country and language name. (157 page eTool)*

Language Population -- *Quickly find the latest population for each of the Living Languages within each nation of Africa. This Quick Reference eTool is sorted by country and language pop. (160 page eTool)*

Language Religion -- *Quickly find the primary and secondary religion for each of the Living Languages of Africa. This Quick Reference eTool is sorted by country and language name. (162 page eTool)*

People Group Reports -- *Quickly find People Group Status Reports for each of the nations of Africa. This Quick Reference eTool is sorted by country and People Group name. (625 page eTool)*

People PROfiles -- *Quickly find, compare and contrast key stats for each of the People Groups of Africa using these one-page People PROfiles. This eTool is sorted by country and People name. Note: There is a separate eTool for each country.*

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9

amazon Try Prime

Samsung Galaxy Tab 3 Lite (7-Inch, White)

by Samsung

★★★☆☆ ▼ 4 customer reviews

Price: **$159.99** & **FREE Shipping**. Details

Key Features

The stunningly sleek and refreshingly simple 7-inch Galaxy Tab 3 is loaded with fun for the whole family. With access to the Web, TV shows, movies and over 750,000 Apps all powered by Android™ 4.1, Jelly Bean, and an easy-to-use interface, the new 7-inch Galaxy Tab 3 truly has something for everyone.

- 7.0" diagonal TFT touch display with WSVGA (1024 x 600) resolution
- 8GB Onboard Memory
- Android™ 4.1.2 Jelly Bean
- 1.2GHz Dual Core Processor
- MicroSD (up to 64GB of expandable storage)
- Wi-Fi: 802.11 a/b/g/n, Wi-Fi® Direct
- Bluetooth® V3.0
- Camera: 3MP rear-facing, 1.3MP front-facing
- GPS with GLONASS
- Internal stereo speakers and 3.5mm headphone jack
- 11Pin (Micro USB), 3.5mm headphone jack, IR Blaster
- Dimensions: 0.39"D x 4.37"W x 7.4"H, 0.67 lbs

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10

amazon
Try Prime

Maxell AirStash Expandable Capacity Wireless 8GB Flash Drive 8 A02 (666602)

by Maxell

★★★★☆ ▼   151 customer reviews

| 7 answered questions

List Price: $149.99

Price: **$79.00 & FREE Shipping**. Details

You Save: $70.99 (47%)

Overcoming the Digital Divide -- One village at a time

This is perhaps one of the most cost effective mobile digital tools we have have seen to date for overcoming the digital divide. Walk into any village, school, church, office, vehicle, aircraft or boat -- press the ON switch and instantly everyone in a 100 foot radius now has wireless access to a 1,000 volume *digital library*, complete audio courses, hundreds of articles and a number of videos. Think of the implications! Virtually every rural school, clinic, community learning center, etc. can now access *life crucial information* for under $ 300. (Including the *external battery pack* and *portable solar charger*) And the really cool part is that there is nothing to install, and no cell phone or Internet charges. You just press the "ON" button!

Key Features

- AirStash is a Portable Private Wireless Network Drive
- Secure portable networked wireless storage up to 128 GB (via removable SD Memory Card). Works with iPad, iPhone, Android Devices, Kindle fire, and more
- Easily expand the amount of storage you can access with your tablet and Smartphone
- Share photos, documents or presentations with up to 8 other wireless devices at once
- Stream videos to 3 wireless devices simultaneously. Each device can receive its own unique video
- Built-in, rechargeable Battery lasts up to 7 hours and charges via standard USB port
- Compatible with any size SD card, allowing almost unlimited storage potential. AirStash ships with a class 10 SD card to get you started
- Free App for iOS and Android devices allows instant access and supports many other PC applications and browsers
- Perfect for car, plane, train, ship, home, office or practically anywhere
- Pocket sized device is slightly larger than a USB drive, making transport simple and convenient. It also works perfectly from your briefcase, handbag or backpack. Range is up to 30 meters
- Provides additional storage for iPad, iPhone, iPod Touch and most other wireless devices
- Save, transfer and share content with others from your camera SD card quickly and easily with no adapter or wires needed

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amazon
Try Prime

Digital Foci 12000mAh External Battery Pack - Retail Packaging - Gray

by Digital Foci
Be the first to review this item

Price: **$59.00** & **FREE Shipping**. Details

Key Features

- Powerful 12000mAh external battery pack [44.4Wh] for charging and powering your portable devices - Charge Smartphone by as much as 7.5 times and Tablet by 1.5 times
- 2 USB outputs with 2.1A and 1A let you charge 2 devices (for example, your Tablet and Smartphone) at the same time

- Significantly faster recharge time with 2A input current: Recharge Battery Porter 12000 to full in just 7-8 hours (Similar capacity battery with 1A input takes up to 15 hours to charge)
- Elegant brushed aluminum design functions as a heat sink to draw heat from the battery cell for safe operation
- Includes both AC and Car Chargers, each with 2 USB outputs (2.1A + 1A) - allowing you to charge Battery Porter and another device at the same time at home, office, or in your vehicle
- Powerful 12000Mah External Battery Pack [44.4Wh] For Charging And Powering Your Portable Devices - Charge Smartphone By As Much As 7.5 Times And Tablet By 1.5 Times ^2 Usb Outputs With 2.1A And 1A Let You Charge 2 Devices (For Example, Your Tablet And Smartphone) At The Same Time ^Significantly Faster Recharge Time With 2A Input Current: Recharge Battery Porter 12000 To Full In Just 7-8 Hours (Similar Capacity Battery With 1A Input Takes Up To 15 Hours To Charge) ^Elegant Brushed Aluminum Design Functions As A Heat Sink To Draw Heat From The Battery Cell For Safe Operation ^Includes Both Ac And Car Chargers, Each With 2 Usb Outputs (2.1A + 1A) - Allowing You To Charge Battery Porter And Another Device At The Same Time At Home, Office, Or In Your Vehicle

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amazon
Try Prime

Anker 14W Solar Panel Foldable Dual-port Solar Charger for 5V USB-charged Devices Including GPS Units, iPhone, iPad, Android Phones and Android Tablets.

by Anker

★★★★½ ▼ 95 customer reviews

Price: $109.99
Sale: **$59.99** & **FREE** Shipping.
You Save: $50.00 (45%)

Simultaniously charge two devices.

Key Features

- 14 watt mono-crystalline 15-18% efficient solar array provides up to 5V / 2A total output among two USB-charging ports.
- Compatible with 5V USB-charged devices including, GPS units, iPhones, iPads, Android phones and Android tablets.
- Hardened PET plastic faced solar panels sewn into high-wear polyester canvas for weather-resistant outdoor durability.
- Folds down into a 8.5 x 11 paper-sized profile for superior portability; well-place eyeholes enable easy attachment to backpacks for use while hiking.
- Package contents: Anker® 14W Foldable Dual-Port Solar Charger, instruction manual.

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